

In re MICHAELI ET AL., Application No. 09/845,606
Claims after Amendment A

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): A system for storing information in a data structure, the system comprising:

a distributor;

one or more storage elements for storing a plurality of sub-data structures; and

a receiver;

wherein the distributor distributes a plurality of items to be added to the data structure to the plurality of sub-data structures in an order; and the receiver receives the items from the plurality of sub-data structures in the order.

Claim 2 (original): The system of claim 1, wherein each of the sub-data structures includes a linked-list data structure.

Claim 3 (previously presented): The system of claim 2, comprising a storage for storing a head and a tail of the linked list data structure of each of the plurality of sub-data structures.

Claim 4 (previously presented): The system of claim 3, comprising a memory for storing the plurality of sub-data structures.

Claim 5 (original): The system of claim 1, wherein the data structure is a linked-list data structure.

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Claim 6 (original): The system of claim 5, wherein each of the sub-data structures includes a linked-list data structure.

Claim 7 (original): The system of claim 1, wherein the data structure is a queue.

Claim 8 (original): The system of claim 7, wherein each of the sub-data structures includes a linked-list data structure.

Claims 9-12 (canceled)

Claim 13 (original): A system for storing information in a plurality of data structures, the system comprising:

- one or more storage elements for storing the plurality of data structures, each of the plurality of data structures including a plurality of sub-data structures;
- a storage selector to select between the plurality of data structures for a particular piece of the information;
- a distributor mechanism; and
- a receiver mechanism;

wherein the distributor mechanism distributes each of a plurality of pieces of the information to be added to a particular one of the plurality of data structures to the plurality of sub-data structures belonging to the particular one of the plurality of data structures in an order; and the receiver receives the items from the plurality of sub-linked lists in the order.

Claim 14 (original): The system of claim 13, wherein each of the sub-data structures includes a linked-list data structure.

Claim 15 (previously presented): The system of claim 14, comprising a storage for storing a head and a tail of the linked list data structure of each of the plurality of sub-data structures.

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Claim 16 (previously presented): The system of claim 15, comprising a memory for storing the plurality of sub-data structures.

Claim 17 (original): The system of claim 13, wherein each of the plurality of data structures is a linked-list data structure.

Claim 18 (original): The system of claim 17, wherein each of the sub-data structures includes a linked-list data structure.

Claim 19 (original): The system of claim 13, wherein each of the plurality of data structures is a queue.

Claim 20 (original): The system of claim 19, wherein each of the sub-data structures includes a linked-list data structure.

Claim 21 (previously presented): A system for storing information in a data structure, the data structure including a plurality of linked list data structures, the system comprising:

- a head address storage for storing head information for each of the plurality of linked list data structures;

- a head selector for selecting between said head information;

- a tail address storage for storing tail information for each of the plurality of linked list data structures;

- a tail selector for selecting between said tail list information; and

- a memory for storing a plurality of elements of said information added to the data structure;

wherein the plurality of elements are distributed to the plurality linked list data structures in an order and the elements are removed from the plurality of linked list data structures in the order, said distributing adds no two consecutive elements of the plurality of elements in the order to the same one of the linked list data structures.

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Claim 22 (previously presented): A system for storing information, the system comprising:

- a plurality of data structures, each of the plurality of data structures including:
 - a plurality of linked list data structures;
 - a head address storage for storing head information for each of the plurality of linked list data structures;
 - a head selector for selecting between said head information;
 - a tail address storage for storing tail information for each of the plurality of linked list data structures; and
 - a tail selector for selecting between said tail list information;
- wherein a plurality of elements of said information are distributed to the plurality linked list data structures in an order and the elements are removed from the plurality of linked list data structures in the order, said distributing adds no two consecutive elements of the plurality of elements in the order to the same one of the linked list data structures;
- a memory for storing said information added to the plurality of data structures; and
- a data structure selector mechanism for selecting between the plurality of data structures.

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Claim 23 (previously presented): A method for adding a plurality of elements to a data structure, the data structure comprising a plurality of sub-data structures, the method comprising:

- (a) receiving information to be added to the data structure;
 - (b) adding said received information to a currently selected one of the plurality of sub-data structures to which to add information;
 - (c) advancing the currently selected one of the plurality of sub-data structures to which to add information to a next one of the plurality of sub-data structures to which to add information in a predetermined order independent of said received information;
 - (d) removing information from a currently selected one of the plurality of sub-data structures to which to remove information;
 - (e) advancing the currently selected one of the plurality of sub-data structures to which to remove information to a next one of the plurality of sub-data structures to which to removed information in the predetermined order; and
- repeatedly performing steps (a)-(c) to add information to the data structure and steps (d)-(e) to remove information from the data structure.

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Claim 24 (previously presented): A method for adding a plurality of elements to a plurality of data structures, each of the plurality of data structures comprising a plurality of sub-data structures, the method comprising:

- (a) receiving information to be added to the data structure;
 - (b) identifying one of the plurality of data structures to which to add the received information;
 - (c) adding said received information to a currently selected one of the plurality of sub-data structures to which to add information of the identified one of the plurality of data structures to which to add the received information;
 - (d) advancing the currently selected one of the plurality of sub-data structures to which to add information to a next one of the plurality of sub-data structures to which to add information in a predetermined order independent of said received information;
 - (e) identifying one of the plurality of data structures to which to remove a piece of stored information;
 - (f) removing information from a currently selected one of the plurality of sub-data structures to which to remove information of the identified one of the plurality of data structures to which to remove the piece of stored information;
 - (g) advancing the currently selected one of the plurality of sub-data structures to which to remove information to a next one of the plurality of sub-data structures to which to removed information in the predetermined order; and
- repeatedly performing steps (a)-(d) to add information to the plurality of data structures and steps (e)-(g) to remove information from the plurality of data structures.

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Claim 25 (previously presented): A system for storing information in a data structure, the data structure including a plurality of linked list data structures, the system comprising:

- means for storing head information for each of the plurality of linked list data structures;
- means for selecting between said head information;
- means for storing tail information for each of the plurality of linked list data structures;
- means for selecting between said tail list information; and
- means for storing a plurality of elements of said information added to the data structure;

wherein the plurality of elements are distributed to the plurality linked list data structures in an order and the elements are removed from the plurality of linked list data structures in the order, said distributing adds no two consecutive elements of the plurality of elements in the order to the same one of the linked list data structures.

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Claim 26 (previously presented): A system for storing information, the system comprising:

a plurality of data structures, each of the plurality of data structures including:

a plurality of linked list data structures;

means for storing head information for each of the plurality of linked list data structures;

means for selecting between said head information;

means for storing tail information for each of the plurality of linked list data structures; and

means for selecting between said tail list information;

wherein a plurality of elements of said information are distributed to the plurality linked list data structures in an order and the elements are removed from the plurality of linked list data structures in the order, said distributing adds no two consecutive elements of the plurality of elements in the order to the same one of the linked list data structures; and

means for storing said information added to the plurality of data structures; and

means for selecting between the plurality of data structures.

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Claim 27 (previously presented): A system for adding a plurality of elements to a data structure, the data structure comprising a plurality of sub-data structures, the system comprising:

means for receiving information to be added to the data structure;

means for adding said received information to a currently selected one of the plurality of sub-data structures to which to add information;

means for advancing the currently selected one of the plurality of sub-data structures to which to add information to a next one of the plurality of sub-data structures to which to add information in a predetermined order independent of said received information;

means for removing information from a currently selected one of the plurality of sub-data structures to which to remove information; and

means for advancing the currently selected one of the plurality of sub-data structures to which to remove information to a next one of the plurality of sub-data structures to which to removed information in the predetermined order.

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Claim 28 (previously presented): A method for adding a plurality of elements to a plurality of data structures, each of the plurality of data structures comprising a plurality of sub-data structures, the method comprising:

means for receiving information to be added to the data structure;

means for identifying one of the plurality of data structures to which to add the received information;

means for adding said received information to a currently selected one of the plurality of sub-data structures to which to add information of the identified one of the plurality of data structures to which to add the received information;

means for advancing the currently selected one of the plurality of sub-data structures to which to add information to a next one of the plurality of sub-data structures to which to add information in a predetermined order independent of said received information;

means for identifying one of the plurality of data structures to which to remove a piece of stored information;

means for removing information from a currently selected one of the plurality of sub-data structures to which to remove information of the identified one of the plurality of data structures to which to remove the piece of stored information; and

means for advancing the currently selected one of the plurality of sub-data structures to which to remove information to a next one of the plurality of sub-data structures to which to removed information in the predetermined order.

Claim 29 (previously presented): The system of claim 1, wherein the order is a round robin order among each of the plurality of sub-data structures.

Claim 30 (currently amended): The system of claim 29, wherein the distributor includes a counter to ~~identifying~~ identify the order.

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Claim 31 (previously presented): The system of claim 13, wherein the order is a round robin order among each of the plurality of sub-data structures.

Claim 32 (currently amended): The system of claim 31, wherein the distributor includes a counter to ~~identifying~~ identify the order.

Claim 33 (new): A queue for storing items of a stream of information with said items received in a particular order, the queue comprising:

a plurality of sub-queues;

an enqueue distributor configured to receive said items of the stream of information in said particular order, and configured to distribute said items to the plurality of sub-queues in a predetermined order such that each of said items are only stored in a single one of the plurality of sub-queues; and

a dequeue receiver configured to only receive said items of the stream of information from the plurality of queues in the predetermined order and to forward said items in said particular order.

Claim 34 (new): The queue of claim 33, wherein said items correspond to packets.